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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,145	09/15/2003	His Majesty Bhumibol Adulyadej	11009.0001	8737

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STEPTOE & JOHNSON LLP
1330 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036

EXAMINER	
HOGAN, JAMES SEAN	

ART UNIT	PAPER NUMBER
3752	

MAIL DATE	DELIVERY MODE
07/28/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/662,145	BHUMIBOL ADULYADEJ, HIS MAJESTY	
	Examiner	Art Unit	
	JAMES S. HOGAN	3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 April 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/6/11*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to former claim 27 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Father of Royal Rainmaking, Ministry of Agriculture and Cooperatives, Thailand, ISBN 974-403-012-7, published December 2001 in view of Our King and Royal Rainmaking, Ministry of Agriculture and Cooperatives, Thailand, ISBN 974-415-074-2, published December 1998, and the Applicant's Specification.

4. As per claim 28, in full detail, the cited document "012-7" teaches a multiple step method of creating precipitation where the method includes:

> On page 43, paragraph 1, and on page 40, the document "012-7" teaches promoting the formation of a cloud in an atmospheric region with a relative humidity of at least 60% at an altitude up to 7,000 feet by introducing sodium chloride powder into the atmospheric region, wherein the atmospheric region is nearly free of naturally formed clouds prior thereto, wherein the mass of sodium chloride powder could be in the magnitude of tons to one of ordinary skill, based

upon the magnitude size of a cloud or section of sky desired to be treated, and the author's requirement in 012-7, page 40, paragraph 3, that 3 aircrafts used to dispense chemicals are have the capability to carry "a minimum of 1000kg" (2679lbs, over 1 ton), and wherein the sodium chloride powder is introduced within a few thousand feet above (above 10,000 ft) a convective condensation level (at 7,000 feet), and wherein an accompanying diagram "1" shows the sodium chloride powder being plausibly introduced upwind of the target area (page 60, paragraph 2, line 3 teaches upwind chemical seeding), where one of ordinary skill in the art would choose to follow a cloud's natural occurring movement direction.

On page 43, paragraph 2, the document "012-7" teaches the promoting of growth in a cloud to increase mass and density thereof through an updraft created (i.e. "accelerate air mass to rise", line 6) by an exothermic reaction by introducing calcium chloride powder into the cloud, the calcium chloride powder having a mass with an order of magnitude of tons (by "showering", line 3, which could be plausibly in the magnitude of tons to one of ordinary skill, based upon the magnitude size of a cloud or section of sky desired to be treated) and the calcium chloride powder plausibly having a particle size with an order of magnitude of a few hundred microns to one of ordinary skill in the art, wherein the cloud has a top region (10,000), a base region (7,000 feet), and a mid-region between the regions, the cited result of the promoting is a cloud condition where

the cloud elevation increases to between 15,000 and 20,000 feet (and thus enters an inherent jet stream) (lines 9-11)

On pages 69 and 72, the document “012-7” teaches where movement of a cloud is promoted wherein additional calcium chloride (“Formula 6, page 69, paragraph 3, taken into consideration the promotion step above) is dispersed into an updraft portion of the cloud created by previous dispersing of calcium chloride at a level above the cloud base region thereof at an altitude of about 8,000 feet (line 4), which is 1000 feet above the base region, and would result in the claimed portion of promoting movement.

On page 43, paragraph 3, the document “012-7” teaches promoting rain from the cloud onto the target area while also suppressing hail formation by introducing additional sodium chloride powder into the mid-region (at 9,000 to 10,000 cited feet, mid region if the cloud elevation is 20,000 feet) (Page 43, paragraph 3, line 5-6) while simultaneously introducing urea at the cloud base region (paragraph 3, line 6) wherein the sodium chloride and urea are dispersed at a 45 degree angle relative to one another to create liquid precipitation (paragraph 3, line 7, and Figure 3, panel 2).

On page 44, paragraph 5, and on page 40, the document “012-7” further teaches introducing an unspecified amount of silver iodide flares at the cloud top region (cited 21500 feet, 1,500 feet above a clouds with a height of 20,000 feet), respectively, wherein the cloud will have a plausible byproduct air mass current of at least 8 m/sec (cited : “over” 5.03 m/sec, derived from “over” 1000 ft/min)

from an updraft at an altitude of 21,500, and where the cited water content is 1gm/m3. The document “012-7” does not teach the quantities of silver-iodide that are required to be dispensed. Document "074-2", however, cites (page 54) a single aircraft to deploy silver-iodide flares of a quantities shown in a photograph being the result of 10 flares being deployed, and where the claimed quantity of 100-300 grams (derived from 5 to 15 flares at 20-grams silver-iodide each, as per Applicant’s Specification) would equate to a quantity of silver iodide used being 200 grams, within the claimed range, and would lead one of ordinary skill to modify the technique in “012-7” with that the claimed quantity shown by document “074-2” in order to provide a quantity for "one cold cloud plane" (Page 44, paragraph 2, line 3) to dispense at a given flight plan where the resultant of precipitation could occur at anytime of the dispensing, and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges, (i.e. the number of flares at a certain weight per flare) involves only routine skill in the art, experimentation and engineering logic, as per the .

On page 44, paragraph 1, including Figures 4 and 6, the document “012-7” teaches continued methodology where releasing flakes of dry ice at about 1,000 feet below the base region of the cloud to increase relative humidity of air mass underneath the cloud (lines 3 and 4), with gradual increase in precipitation and creation of downdraft (rain fall intensity, line 6), such that moist air is introduced into the base region of the cloud (lines 4 and 5) and continuing the

method in tandem with the urea and sodium chloride steps above into other base regions of neighboring clouds.

Summarily, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have adjusted the few variables of quantities of chemicals and expected variable results in updraft speeds in order to claim a multiple step methodology for the production of a desired precipitation event, as supported by the cited documents

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES S. HOGAN whose telephone number is (571)272-4902. The examiner can normally be reached on Mon-Fri, 7:30a-4:00p EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Len Tran can be reached on (571)272-1184. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S. H./
Examiner, Art Unit 3752

/Len Tran/
Supervisory Patent Examiner, Art Unit 3752